



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,767	02/25/2002	James F. Cameron	51066	4399
21874	7590	03/24/2004		
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			EXAMINER ASHTON, ROSEMARY E	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

10/082,767

Applicant(s)

CAMERON ET AL.

Examiner

Rosemary E. Ashton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13, 27 and 29-33 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-10, 12, 13, 27 and 30-33 is/are rejected.  
7) ☒ Claim(s) 11 and 29 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

Art Unit: 1752

## DETAILED ACTION

### *Claim Objections*

1. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 has no searchable formulae.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7,10,12,13,31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al U.S. patent no. 6,399,273.

Yamada teaches a photoresist composition and a method of forming a pattern using the composition wherein the composition comprises a resin, photoacid generator (PAG) and a sensitizer. The preferred PAG's are sulfonium salts, iodonium salt and imidosulfonates as in claims 7 and 10 (col. 17, lines 16-18).

The sensitizers as shown in col. 18, lines 42-60 and are aryl compounds such as pyrene which is a carbocyclic aromatic and acridine which is a heterocyclic aromatic with 3 fused rings as in claims 2-6. As shown in col. 18, lines 8-67, the composition is coated on a silicon substrate, exposed to 193 nm and developed as in claims 1 and 12.

While Yamada does not exemplify a resist composition comprising a sulfonium salts, iodonium salt or imidosulfonates PAG and an aromatic hydrocarbon sensitizer, such as pyrene or acridine, it would have been obvious to one of ordinary skill in the art to use these reagents in combination with a reasonable expectation of obtaining a resist being water processable because the limited number of reagents taught makes obvious their combination.

Art Unit: 1752

4. Claims 13,17,30,31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al U.S. patent no. 5,939,242.

Tang teaches a photoresist composition comprising a resin, PAG and sensitizer wherein the PAG is an oxime sulfonate or N-oxymidosulfonate and the sensitizer is an aromatic hydrocarbon (col. 6, lines 15-23 and lines 58-63). The composition is coated on a substrate, exposed at the lowest range of 220 nm and developed as in claims 17 and 30.

While Tang does not exemplify a resist composition comprising an oxime sulfonate or N-oxymidosulfonate PAG and a sensitizer that is an aromatic hydrocarbon such as pyrene or anthracene it would have been obvious to one of ordinary skill in the art to use these reagents in combination with a reasonable expectation of obtaining a resist having long shelf live because the limited number of reagents taught makes obvious their combination.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 13,17,31 are rejected under 35 U.S.C. 102(b) as being anticipated by Bauer et al U.S. patent no. 5,077,174.

Bauer et al teaches a resist composition comprising a naphthylsulfonium PAG of the compound below and benzophenone which is a sensitizer/initiator as shown in Table 4, resist 4C. Initiator #3 is:

Art Unit: 1752

*Initiator #3--Dimethyl-2-(4-hydroxynaphthylsulfonium hexafluorophosphate*

The composition is coated on a substrate, exposed and developed as in claim 17 and forms an article of manufacture as in claim 31.

7. Claim 33 is rejected under 35 U.S.C. 102(e) as being anticipated by Goto et al U.S. patent no. 6,235,358.

As shown in the abstract Goto teaches a curable composition comprising a naphthylsulfonium PAG and a thioxanthone sensitizer.

***Allowable Subject Matter***

8. Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach a method for exposing at <200 nm using a composition having the required PAG and sensitizer.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 571-272-1326. The examiner works a flexible work schedule and can normally be reached M-F between 10:00 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached at 571-272-1385.

The official fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from

Art Unit: 1752

either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rosemary E. Ashton  
Primary Examiner  
Art Unit 1752

rea  
March 22, 2004

ROSEMARY ASHTON  
PRIMARY EXAMINER